

United States Patent [19]

George et al.

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[54] METHOD FOR DISK I/O TRANSFER

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[58] Field of Search 364/200, 300, 900

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[57] ABSTRACT

A disk control system offloads to the disk controller

much of the overhead associated with disk operations and makes the CPU available for other work. A command block that fully specifies a user request for a disk operation is forwarded to the disk memory unit. The command block contains a unique identifier for tracking of user requests. User requests are executed by the disk memory unit in an order that is most efficient for the disk drive system. The status of a user request is communicated to the CPU via an interrupt and a status block containing the unique identifier. The status block indicates status conditions such as command read, completion and DMA channel request. The disk driver contains a work queue for user requests that have not been forwarded to the disk memory unit and a pending queue for user requests that are awaiting completion by the disk memory unit. By manipulation of the work queues and pending queues, the disk controller can be automatically reinitialized when an error occurs. The disk driver monitors the time that each user request is on the pending queue in order to detect failures of the disk memory unit.

53 Claims, 24 Drawing Sheets

